

REMARKS

Reconsideration and withdrawal of the objections to and rejections of the application are respectfully requested in view of the amendments and remarks herewith, which place the application into condition for allowance.

I. STATUS OF CLAIMS AND FORMAL MATTERS

Claims 3, 4, 7, 10-17, 31 and 63 are pending. Claims 1, 2, 5, 6, 8, 9, 18-30 and 32-62 are cancelled, claims 3, 4, 7, 10-17 and 31 are amended and claim 63 is added, without prejudice.

No new matter is added by these amendments.

It is submitted that these claims are patentably distinct from the prior art cited by the Examiner, and that these claims are in full compliance with the requirements of 35 U.S.C. §112. The amendments herein are not made for the purpose of patentability within the meaning of 35 U.S.C. §§ 101, 102, 103 or 112; but rather the amendments are made simply for clarification and to round out the scope of protection to which Applicants are entitled. Support for the amendments to the claims is found throughout the specification, e.g., at page 30, lines 4-14.

II. 35 U.S.C. §112, FIRST AND SECOND PARAGRAPH, REJECTIONS

Claim 24 was rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. The rejection is respectfully traversed.

The cancellation of claim 24, without prejudice, renders the rejection moot. Consequently, reconsideration and withdrawal of the Section 112, second paragraph, rejection are respectfully requested.

III. DOUBLE PATENTING OBJECTION

Claims 31 and 61 were objected to under 37 C.F.R. 1.75 for alleged double patenting.

The rejection is traversed.

The cancellation of claim 61, without prejudice, renders the objection moot.

Consequently, reconsideration and withdrawal of the double patenting objection are respectfully requested.

IV. 35 U.S.C. §§ 102 AND 103 REJECTIONS

Claims 3, 4, 7, 10-17, 31, 61 and 66 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 6,291,763 to Nakamura; and claims 3, 4, 7, 10-17, 31, 61 and 66 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent No. 6,495,067 to Ono. None of the cited documents teach, enable, suggest or motivate a skilled artisan to practice the instantly claimed invention.

The instant invention is directed to a photoelectric conversion device comprising a semiconductor and a polymeric electrically conducting agent. The polymeric electrically conducting agent, in turn, has a melting point temperature which is lower than the operation temperature of the photoelectric conversion device. Further, the polymeric electrically conducting agent has a glass transition temperature T_g .

Neither Nakamura nor Ono discloses such an invention. Nakamura relates to a photoelectric conversion device comprising an electrically conductive substrate, a photosensitive semiconductor layer, a charge transporting layer, and a counter electrode, wherein an electrically

insulating spacing layer is provided between the semiconductor layer and the counter electrode. The charge transporting layer is a layer containing a charge transporting material having a function of replenishing oxidized dyes with electrons. Preferably the layer contains a molten salt electrolyte comprising preferably halide ions. Thus, an ionic conductor is disclosed in Nakamura and there is no teaching or suggestion of substances having a glass transition temperature or being a polymer. Further, polymers in Nakamura are electrically insulating particles forming a non-conductive spacer. In other words, none of the compounds in Nakamura have a glass transition temperature since none of these is polymeric.

Ono is equally defective. The patent relates to an electrolyte containing an ionic *liquid crystal* compound especially useful in photoelectrochemical cells using a semiconductor. The phase transition from crystalline or amorphous to liquid crystalline, however, depends on the material. In contrast to the instant invention, liquid crystals as taught by Ono do not have a glass transition temperature T_g . Further, liquid crystals are polymers which have different regions, as discussed in greater detail below. Thus, Ono fails to teach and enable compounds having a glass transition temperature.

For the Examiner's benefit, Applicants respectfully summarize the differences between glass transition and melting temperature. The term glass transition temperature applies only to polymers. The glass transition temperature (T_g) is the temperature, at which a polymer changes from hard and brittle to soft and pliable. Glass transition is *not* the melting of a polymer. It occurs only to polymers in the amorphous state and since a polymer often has both amorphous and crystalline domains within it, the same sample can often have a melting point and a T_g . But, within a sample, the chains that melt are not the chains that undergo the glass transition.

Melting is a transition which occurs in crystalline polymers and occurs when the polymer

chains fall out of their crystal structures and become a disordered liquid. The glass transition, by contrast, occurs in amorphous polymers whose chains are not arranged in ordered crystals. Even crystalline polymers have some amorphous portion. This portion usually makes up to 40%-70% of the polymer sample. This is why the same sample of a polymer can have both a glass transition temperature and a melting temperature. But it is respectfully emphasized, however, that only the amorphous portion undergoes the glass transition, while the crystalline portion undergoes melting.

In other words, the glass transition is a transition which occurs in amorphous polymers. The molecules in the glass status are arranged statistically so that all solid exhibits the structure and the energy content of a liquid. By contrast to the instant invention, neither Nakamura nor Ono teach, enable or suggest glass transition in polymers. Furthermore, crystalline compounds as taught in the cited art are not desirable as polymeric electrically conducting agents, as explained on page 8 of the instant specification.

Thus, as each and every element of the claimed invention is lacking in the cited documents, the Section 102 rejections must fall. Similarly, as the cited documents fail to teach, suggest or motivate a skilled artisan to practice Applicants' invention, the Section 103 rejections must also fall.

Further, it is well-settled that "obvious to try" is not the standard upon which an obviousness rejection should be based. *See In re Fine*. And as "obvious to try" would be the only standard that would lend the Section 103 rejection any viability, the rejection must fail as a matter of law. Therefore, applying the law to the instant facts, the rejection is fatally defective and should be removed.

Consequently, reconsideration and withdrawal of the Sections 102 and 103 rejections are respectfully requested.

CONCLUSION

By this Amendment, claims 3, 4, 7, 10-17, 31 and 63 should be allowed; and this application is in condition for allowance. Favorable reconsideration of the application, withdrawal of the rejections and objections, and prompt issuance of the Notice of Allowance are, therefore, all earnestly solicited.

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